



## An Introduction to Employment in Main Parts of Tehran Province Based on Output-Input Division

**Nasrollah Maghsoudi\***

Associate professor, Department of Accounting, Faculty of Management and Accounting, Islamic Azad University Islamshahr Branch, Islamshahr, Iran

Received: 2017/01/11

Accepted: 2017/04/17

**Abstract:** This paper has been done in order to recognize and review the existing job market, to analyze obvious and hidden aspects of unemployment, and to develop employment field in Tehran province. First, by using statistical information and determining economic parts ratio of job market and work force's divisional transition, the quantity and additive parts of work force for all towns of Tehran province were specified and then the real amount of work force demand was estimated in Iran horizon prospects up to 2025. In this paper, some models were used, based on output-input job market way. They include: the first method was based on employees statistics in economic portion. It consists of shift-share with location-quotient method. The second method input-output is based on production value added, that was used in three main parts such as economy, agriculture, service and industry to evaluate attraction or export of work forces in every town. The research findings show that employment share in agricultural part from 2006 to 2015 encountered 0.1% reduction and from 2016 to 2025 it would face 0.1% amplification. Employment share in industry part increased up to 0.3% and then to 1404 it would encounter 5% reduction. Service sector share in 2006 to 2015 was nearly stable (it decreased to 0.2%). And then from 2015 up to 2025 it continues its increase procedure and reached to 5% growth. Most employment variation is related to the share of service sector. Most location-quotient using employment model is related to Tehran city in service sector and least amount related to Tehran city is in agricultural and industrial part.

**Keywords:** Tehran province, economic parts, shift share model, location quotient model, output-input model

**JEL Classification:** J21, R11, R15, N15

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\* Corresponding Author: dr\_n\_maghsoudi@yahoo.com

## 1- Introduction

Economic systems analysts believe the most important indicators of shortage in social welfare include phenomena such as poverty, peasants' immigration, logistics inequality, environment crisis, inappropriate distribution of social finance, income inequality, and concerns related to the national security. In present days, problems in most countries of the world belong to unemployment, and most governors applied maximum program schedules in employment areas (Ranjbar Fallah et al., 2011). Employment as a financial supply artery is related deeply to all these cases. Therefore, the problem of constant occupation establishment system and decrease, in unemployment in parallel with increase in human state in development process, is of today society's demands.

The country's planning system intends to actualize long-term country goals for Iran prospects up to 1404 (2025) in a following decade, with all accomplished programs. The country's vision that is ahead us can be known as a combination of national will to reach the appropriate universal state, ongoing procedures, and internal or external existing protocols. However events may have negative or positive effects on resolved cases or existing procedure. System's desire to reach the appropriate universal state and future image before us, in a twenty-year prospect of Islamic republic of Iran was represented especially in employment factor.

Since Tehran province has economic, political and social condition, it requires maximum attention to unemployment problem. Fostering culture or special tendency to employment and planning, policy making on methods and ways of its improvement in order to attract province finance

development are of important points in economic programs. Therefore, because of many reasons such as lack of inappropriate job distribution in different economic parts and inequality in salary distribution, dissymmetric economic sources distribution became to existence.

Tehran province with centrality of Tehran and the area of 12981 square kilometer, is located between 34 to 36.5 degree of northern width and 50 to 53 degree of eastern length. This province is limited to Mazandaran province from north and Qom province from south, to Central province from southwest, to Alborz province from west and to Semnan province from east. Tehran province, with more than 12 million people, accounts for 17 percent of the whole country population.

This research is looking for to inquire employment condition in towns located in Tehran province during 2006 to 2015 and 2015 to 2025 using shift-share model. It seeks to predicates this important change for Iran 2025 horizon program. Also by using location-quotient methods -in two states; a: by using statistics on occupation in regions and towns b: by using added value statistics of towns- it evaluates that how work forces of subset towns of Tehran province arrive or leave the area. The main question of this research is looking to answer how would be the changes or analysis of occupation in separating towns of Tehran province in three parts such as agriculture, industry and service applying mentioned coefficient?

This research aims to investigate job creation states in economic parts, evaluate competitive ability of provincial interior in job creation and potential opportunity of production. Therefore, the models that have common usage for this purpose were used. There are some prerequisite of this

research. There are some improper relations among different economic parts of towns in Tehran province to attract or issue work forces while appropriate distribution programs is not accomplished by investment or promoting job quality and quantity inside regional interior. Therefore, the present research inquires necessary contexts for human forces planning in Tehran province towns, and it pays attention to classify the abilities of provincial interior in occupation fields.

## 2- Literature Review

### a) Foreign Researches

Evans (2008) from the Agricultural Economics Department of the University of Mississippi, investigated the impact of employment changes in an area, due to the connection with non-economic parameters.

Singh & Singh (2011) in an article entitled "regional input output table for the state of Punjab" concluded that by using LQ's methodology, 42 parts of input-output table can be produced for Punjab Province.

Reveiu & Dardala (2009) used the coefficients of location and share change model for Romania, in order to study quantitative methods for prioritizing. The main purpose of this paper is to provide some methods for assessing the employment status and determining the spatial model of industrial deployment. Using the share change model and the spatial coefficient, they found that the share change model is useful for identifying job creation in each sector.

Bashford Fernández (2014) in a study titled "A new look at local employment multipliers: Preliminary evidence from Spain" calculated employment in basic and non-basic economy in various job groups.

Otsuka (2016) investigated regional energy demand by the spatial coefficient in Japan. Industry, construction, and

transportation sectors were three studied sectors with locational coefficient.

### b) Iranian Researches

Farhoodi & Mohammadi (2006) in analyzing and predicting job condition in Sanandaj town, by using shift share, location quotient and Gini coefficient, investigated economic structure of urban districts. Then, they suggested three scenarios to predict future structure of main jobs in 1996 and 2006.

Karimi & Hasanpour (2009) in an article inquired ranking of small and medium industries in Isfahan province by evaluating competitive profit determinant factor's action. This research reviews competitive advantage of small and medium industries in Isfahan province in 1996 up to 2005 using complex indicators and by applying location quotient concept.

Layeghi et al., (2012) in an article about determining value added for agricultural sector in Gross Domestic Product, reviewed value added share and location quotient of Zanjan province and the whole country. In addition, job creation share of this part on whole parts job creation using location quotient was investigated. Moreover, they calculated employment level in agricultural sector and its subsets and production importance with all regions employment has been evaluated. As a result, Zanjan province has a good performance in agriculture sector and it has earned essential relative profit in production and employment sectors.

Hosseini et al., (2011) in an article entitled "adaptive analysis about relative advantages and job inequality in Khorasan Razavi and country urban areas" determined relative profits of occupation among country's-urban areas and Khorasan Razavi province. This study used information analysis method applying basic economic model, location and variation quotient.

Akbari et al., (2013) in an article entitled "job condition analysis of main

economic parts in Kermanshah province), by applying location quotient indicator, concluded that improper growth of employees in Kermanshah province towns compared to employees in Kermanshah province derived from dissymmetry in competitive changes or negative structure of the towns. The main goal of the research is reviewing occupation growth of Kermanshah province towns that they are strongly affected by provincial economic activities structure. It was based on basic and non-basic identification of main groups of economic activities in Kermanshah province towns from job condition's prospects.

Zangi Abadi & Ahangari (2012) determined job condition of economic sectors and groups in town centers of west Azarbaijan during 1996 up to 2006. For this purpose, by using shift share methods, it is undertaken to recognize the parts with relative advantage. Therefore, basic sectors that were exporters of work forces have been characterized using location quotient.

Azadinejad et al., (2013) introduced applied technique to codify a regional input- output table of Khorasan Razavi province. In this study, in addition to applying location quotient as a way to determine location share of different parts, they specified that location share method is the most appropriate way to supply information for economic sectors of the province.

Lotfi et al., (2013) analyzed relationship between population and occupation in Sari town compared to urban areas of the country in three sectors including agriculture, industry and service. This study applied usage of location quotient with shift share model. Consequently, it is clear that by reviewing these models, in Sari city an

unbalanced state is seen in triple economic parts.

Bakhtiari et al., (2013), scheduled new ways for input- output estimation in Yazd district. 33 cases reviewing parts were evaluated in new models. Among quotients of SLQ, ACILQ, CILQ, FLQ, the quotient ACILQ can be an appropriate standard to develop national coefficient into regional coefficient. It is useful for small regions.

### 3- Theoretical Framework

Solving unemployment problem and job creation in the whole country are the most important governments' duties. However, balanced and constant job creation in Tehran province is permanently emphasized in order to have an appropriate economic growth with development programs and to design a coherent and practical planning by government. Therefore, efforts to take effective steps that underlie employment are undeniable necessity by the government and Supreme Council of Employment.

Traditional theorists of economics did their best mainly for analyzing production economy (agriculture, industry and mining). These scientists thought about service mostly as a shape of financial service and pointed out to the unproductive nature of the services. In past, service sector was not taken seriously by early economists. But today, with more urbanization development, it became the main principle of economic activities in all countries around the world, and specially in developed countries with a paralleled relation to other economic parts has had a growth and dedicated main part of added values of these countries to itself. It is remarkable that an event took place In Iran was job increase in service sector,

without dependence to growth in industry or agriculture parts. Therefore, service occupation in Iran benefits from an unstable job creation structure. As a result, development in broking markets is derived from underground or shadow economy activities. It decreases share of agricultural or industrial sectors from employment and dedicates it to itself.

The issue of employment and its complexities in our society attract many experts or governors attention to itself. Economic sectors are considered as pillars of development in any area. The growth of economic parts indicates progress for any area. Enjoying specific goals for economic activities in any place characterizes progress for that place in one special economic field. (Zangi Abadi & Ahangari 2012).

One of the most important essences of production process in economy is workforce, and occupation of work force is of great importance for economic policy makers. In addition, job creation is considered as an important goal for them. In Iran, due to its economic structure, unemployment has been regarded as an economic problem in different periods, and job creation is considered in different parts for the governors in macro policy making of the country. This policymaking was intensely based on increase in job creation in different parts (Jalali Esfand Abadi & Javidan 2010).

Statistical studies indicate that the problem of intense tendency of crowd especially youth to service sector and avoiding from industry sector especially agriculture, is not limited to Iran and most developed countries of the world suffered from this challenge. 72 percent of European population employees are working in service sector, and 77 percent of Canada

population are also working in service sector, even the United States that is on the first grade in the world ranking for agricultural products, and it has had 7 percent of occupation in agricultural sector in 2013.

Statistical Center of Iran in its demography system, defines work force presentation or active parts, in this way: active economic crowd include people older than 10 years that participate in goods or service product (employed) or regardless of their abilities they do not participate in any areas (unemployed). In fact, numbers of active crowd indicate those who are able to present their work force to the job market and they are divided in two employed and unemployed groups. Employed group, based on definition, is a part of active ones that work at least one hour a week. There are several definitions about unemployment. In one definition, unemployment happens in conditions that active ones mainly have no economic activities. In other words, unemployment takes place when work force presentation is more than its demand. In fact, unemployment is an involuntary long-term gap when it is not easy to attain new job. (Statistical Calendar of Tehran Province, 2013).

Statistical Center of Iran definition in demography system of an unemployed is as follow: unemployed are regarded the ones who are more than 10 years that do not have any jobs (no self-employment or salaried workers) or are ready to work (ready for being paid salary or self-employment) job quester (it accomplished personal action looking for salary occupation or self-employment. (Tehran Province Annual Calendar 2013). Moreover, the ones who do not look for a job because they would start new job in future or waiting to return back to their earlier jobs,

and they do not have a job and also ready for job and are considered unemployed. (Hassani, 2015).

One of the most important macroeconomic parameters include employment. Any variation in this parameter has its effect on other economic parameters. Occupation is main requirements of the society. In addition, any incompetence or shortage causes many economic, social or cultural abnormalities, that are affected by some different reasons. (Mohammadi et al 2013).

Today, the role of employment on life mobility is obvious for everyone. This means that many problems and difficulties in urban societies derived from ill being structure of the occupation. On the other hand, employment and inequalities are two associated or interdependent things together. Unequal job opportunities in different regions cause several inequalities in other development categories. Moreover, development inequalities among regions cause imbalance or disequilibrium in creating job opportunities. Therefore, some regions are more developed and some regions are prevented from developing and it causes imbalance in our city system of the country during long term. Therefore recognizing job condition of different parts of the country for programming and aware interfering in this field is of special significance. (Zangi Abadi & Ahangari 2012).

Tehran province for its economic and political state benefits that always is considered as a center for planning and decision making of the country, is on superior country condition in investment attractiveness and opportunities. In this regard, inquiring job degree, produced added value and tendency for investment in different parts of the province suggest service sector has a job creation share of

61 percent, industry, mining and building 38 percent as a second attractive part for employed and suppliers, and it consists a large amount of great projects. The third part is agriculture that has less than 2 percent share (Annual Yearbook of Tehran Province, 2013). For this reason, inquiring job creation share of main economic parts of Tehran province is of great importance using shift share and location quotient model (applying job data and value added) in order to evaluate their performance and effects.

#### 4- Research Method

This research is limited to Tehran province and its subset towns. Thus, statistical information of 2006 to 2012 written in demography of Tehran province and tables about Iran's national accounts (regional accounts) that produced by Statistical Center of Iran, in a research based on library-evidence methods, analyzed the subject. In terms of purpose, this research is applied, and by normal shift share methods, it analyzed job condition and main economic activities groups in Tehran province centers. Meanwhile, it inquires entrance and exit of work force in three main sectors based on introduced ways. Then, it pays attention to estimate work force demands. In addition, by using methods expressed as follows, it presents research finding in calculated tables.

##### *Shift Share Model (S-S)*

Shift share is a standardized regional analysis method to determine the amount of job growth in towns compared to the province as a whole. In fact, shift share is a method to measure competitiveness of different economic sectors in a region. This method at first has been used in one period to analyze job variation in a region. This method is useful for response to

measuring job rise or fall procedure in agriculture, industry and service sectors.

This pattern is a picture of economic parts places in the region. In addition, it is an analysis for increasing effects or growth reduction of town as a measurement to the province. Moreover, it is affected by job procedure variation in those parts. Traditional analysis of share transition has been used in four classifications: national or regional growth, the impact of economic sectors, expectation changes, and regional advantage condition.

This model contains three main indicators: entire growth of province (RS), relative growth of economic sectors in town in respect with the economy of province (EM), relative performance of each part in town in respect with the performance of that part in province (CS).

**-Entire Growth of Province (Regional Share), (RS)**

This indicator is a standard of job growth in one period (2006-2015) and includes:

$$RS = \frac{E_i^{yn}}{E_i^{yb}} - 1 \quad (1)$$

$E_i^{yn}$ : is town employment in special economic sector of the town in current year (2015)

$E_i^{yb}$ : town occupation in special economic part in basic year (2006)

**-Entire Growth Share Economic Sectors of Town in the Economic Total Province (Economic Mix), (EM)**

This indicator for growth or decrease of employment in the sector of total province includes:

$$EM = \frac{E_i^{yn}}{E_i^{yb}} - \frac{E_r^{yn}}{E_r^{yb}} \quad (2)$$

$E_r^{yn}$ : The employment of town in the sector special economy in current year (2015)

$E_r^{yb}$ : The employment of town in the sector special economy in current base (2006)

**-Each Sector of Performance Indicator, Town of Province's (Country Share, CS)**

$$CS = \frac{E_{li}^{yn}}{E_{li}^{yb}} - \frac{E_r^{yn}}{E_r^{yb}} \quad (3)$$

$E_{li}^{yn}$ : The employment of town in the sector economy in current year (2015)

$E_{li}^{yb}$ : The employment of town in the sector economy in current year (2006)

Sum estimation of three equation (RS, EM, CS) in order to measure variation and predict job condition for one period is as follows:

**Sum of Triple Indicators**

$$E_{li}^{yb-yn} = RS + EM + CS \quad (4)$$

**Variation Indicator**

$$\Delta E_{li}^{yb-yn} = (RS + EM + CS) * i \quad (5)$$

$\Delta$ : variation symbol

$E_{li}^{yb-yn}$ : Job variation in every town and in every economic sector

$i$ : numbers of employees in every parts

**Prediction indicator**

$$E_{li}^{yt} = E_{li}^{yn} + \Delta E_{li}^{yb-yn} \quad (6)$$

$E_{li}^{yt}$ : numbers of estimated employees for future period.

**Location Quotient in Models L-Q and I-O**

The use of Location quotient index at tow follow structure includes:

Location quotient indicator is considered as an outcome of production in one region in different economic activities compared to the greater region of that province or the country using numbers of employees. In this indicator, variables such as value added regional, regional production extent, employment total, investment amount, in same economic activity are measured in respect of the whole province and some activities that consist productive specialty are highlighted. It is remarkable that in

this coefficient instead of using numbers of employees we can use Rial value added numbers as a standard of proficiency in town production compared with the province as a productive share or a share resulted from value added.

$$LQ_i = \frac{\frac{E_i}{\sum E_i}}{\frac{E_r}{\sum E_r}} \quad (7)$$

$LQ_i$ : It is a location quotient of employment or town value added in every economic part.

$E_i$ : It is an employment (value added) in a considered part of a town

$\sum E_i$ : Is an employment (value added) in total town economy

$E_r$ : Is an employment (value added) in a considered part of a town

$\sum E_r$ : Is an employment (value added) in the total province economy

Since in this research, towns of Tehran province economic activities have been measured, therefore analysis and evaluation of location quotient are as three following models.

- If  $LQ > 1$ , The considered town would consist more productive specialty in that specific activity compared to the entire province.

- If  $LQ = 1$ , Productive specialty of a town and the entire province in specific activity would be the same.

- If  $LQ < 1$ , A town in that specific activity has less productive specialty compared with entire province.

Results of these three stages can characterize existing condition of Tehran province economic structure and relative advantage of every economic parts of

them in each main economic activities (service, industry, agriculture).

#### a) Employment Structure

In this structure  $LQ_1$  is used as a requirement indicator or work forces export.

$$LQ_1 = \frac{\frac{\text{entire employment in } i \text{ parts of a town}}{\text{entire employment of a } j \text{ region}}}{\frac{\text{employment in parts } i \text{ region}}{\text{entire employment of the province}}} \quad (8)$$

#### b) In Value Added Structure

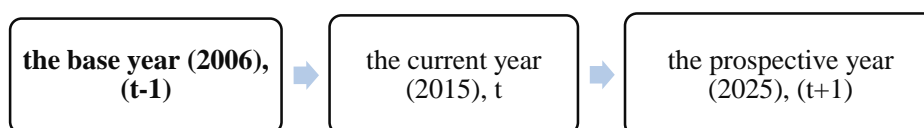
In this structure, economic activities that had better performance in creating value added would be recognized and are proposed to develop economic-social welfare. Therefore,  $LQ_2$  is used as an indicator for input- output method in these activities.

$$LQ_2 = \frac{\frac{\text{entire value added in } i \text{ region of a } j \text{ town}}{\text{entire value added in a } j \text{ town}}}{\frac{\text{value added in } i \text{ part of a town}}{\text{entire value added of province}}} \quad (9)$$

### 5- Research Findings

In 2013, based on statistical results of Tehran province work forces, 36.6 percent of population are more than 10 years old and considered mostly active. Unemployment rate in this group is 9.9 percent. Relative distribution of employed in three main economic activities includes 1.5 percent in agriculture sector, 37.4 percent in industry and 61.1 percent in service sector.

Table1 shows the number of employed in main activity sectors, by town separating in 2006 and 2015. Statistical employment procedure was selected in 2006 as an earlier (t-1) that has 9 years distance. Therefore, with statistical estimation, nine years later meaning 2025 as a predictive year (t+1) can create time distance balance. Current year is regarded as a mediate (t).



**Fig1. Research period**



**Table1. Number of employed in main activity sectors by town separating**

Town	The base year (2006), (t-1)				The current year (2015), t			
	Agriculture	Industry	Service	Total employment	Agriculture	Industry	Service	Total employment
Islamshahr	2350	45186	74260	121796	2588	52048	84529	139165
Baharestan	2546	48947	80441	131934	2804	56408	91609	150821
Pakdasht	1542	29633	48699	79874	1697	34149	55461	91307
Pishva	376	7231	11884	19491	414	8333	13534	22281
Tehran	43227	830936	1365557	2239720	47620	957575	1555165	2560360
Damavand	525	10093	16587	27205	578	11633	18889	31100
Robatkarim	996	19136	31477	51579	1095	22053	35184	58962
Rey	1682	32337	53143	87162	1853	37265	60521	99639
Shemiranat	246	4734	7779	12759	281	5456	8860	14597
Shahriyar	3085	59307	97466	159858	3399	68345	110998	182742
Firoozkooh	212	4070	6688	10970	233	4689	7616	12538
Qods	1423	27353	44952	73728	1567	31521	51193	84281
Malard	1829	25148	57761	94738	2014	40503	65780	108297
Varamin	2476	47589	78221	128295	2728	54852	89083	146663
Sum	62515	1201709	1974885	3239109	68871	1384830	2249052	3702753
Total	3239109				3702753			

**Reference: (Statistical Center of Iran)**

Statistical tables (2) and (3), are calculated based on written relations in shift share method. In these calculations, employment structure variation of Tehran province towns is as following.

RS quotient shows employment growth in entire Tehran province economy since 2006 to 2015 as  $RS=0.143$  equals to 14.3. This coefficient is the employment growth of entire Tehran province.

EM Coefficient, during 2006 to 2015, shows positively the growth related to agriculture and service sectors. Positive mark of these coefficients for both agriculture and industry sectors are a reason for employment progress in mentioned sectors. In industry  $EM=0.042$  is higher than  $EM=0.004$  in service sector. However both quotient show small amount low growth (4 percent in agriculture and 0.4 percent growth in service sector). In addition, this small growth in agricultural part is of importance. EM quotient is negative for industry part. Employment decrease in two inquired cases indicates wane of this part and is one of ordinal challenge over Tehran province industries. ( $EM=-0.009$

equals to -0.9% which is a number showing less than 1 percent, although it is too small but it implies recession and degradation of this part.

The third variable is CS or competitive situation of every cities compared with the province in economic part. In agricultural sector of towns Shahriyar, Varamin and Shemiranat, they have positive quotient and it indicates that both cities in agricultural part attracted work forces and other towns lost their work forces. In industry, Islamshahr, Qods, Malard, and Firoozkooh towns have a negative quotient. It indicates that both cities in industry have lost their work forces and other towns have had employment growth in industry.

In service sector, except Islamshahr, Damavand, and Firoozkooh, other towns are positive and ascending and have a growing employment.

Also it is seen in the last column of every economic part of table 2 that three parameters of RS, EM, CS are added together and it shows the sum of these three quotients.

**Table2. Quotients of economic condition in shift share model (2006\_2015)**

Town	Elements of Shift Share Model									
	RS	Agriculture			Industry			Service		
		EM	CS	RS+EM+CS	EM	CS	RS+EM+CS	EM	CS	RS+EM+CS
Islamshahr	0.143	0.042	-0.00039	0.18421596	-0.009	-0.00052	-0.047623495	0.004	-0.00054241	0.000173
Baharestan	0.143	0.042	-0.00033	0.18427479	-0.009	0.00005	0.00430709	0.004	0.000004674	0.00065
Pakdasht	0.143	0.042	-0.00115	0.18345817	-0.009	0.000018	0.004274575	0.004	0.00002295	0.0025
Pishva	0.143	0.042	-0.0006	0.18400319	-0.009	0.000019	0.004276302	0.004	0.0012141	0.0014
Tehran	0.143	0.042	-0.00005	0.18456566	-0.009	0.000025	0.004282149	0.004	0.0000203	0.0022
Damavand	0.143	0.042	-0.0007	0.18389174	-0.009	0.0002	0.004457907	0.004	-0.00004662	-0.0045
Robatkarim	0.143	0.042	-0.0023	0.18233695	-0.009	0.000055	0.004312111	0.004	0.0000386	0.004
Rey	0.143	0.042	-0.000005	0.18460404	-0.009	0.000015	0.004271999	0.004	0.00000296	0.00047
Shemiranat	0.143	0.042	0.0406	0.22521578	-0.009	0.00014	0.00439064	0.004	0.0001339	0.014
Shahriyar	0.143	0.042	0.00011	0.18472218	-0.009	0.000014	0.004270388	0.004	0.0000082	0.00099
Firoozkooh	0.143	0.042	-0.0026	0.18199596	-0.009	-0.00029	0.003965362	0.004	-0.000074	-0.0072
Qods	0.143	0.042	-0.00048	0.18413402	-0.009	-0.000002	0.004255077	0.004	0.0000007	0.0009
Malard	0.143	0.042	-0.00052	0.18408753	-0.009	-0.000024	0.004232663	0.004	0.000007	0.00072
Varamin	0.143	0.042	0.0001	0.18471642	-0.009	0.000021	0.0042787271	0.004	0.000033	0.0035

Total written values in this column are positive (except industry sector related to three towns such as Islamshahr, Damavand, Firoozkooh) and are the reasons for employment progress in inquiring period of related towns. It is remarkable the highest quotient in agriculture, industry and service respectively belong to towns like Shemiranat, Damavand, and the least quotient related to these parts respectively belong to towns like Firoozkooh, Damavand, and Islamshahr. Therefore, the most attraction is related to service sector and agriculture is on the second grade.

Table (3) has been adjusted in two parts. In the first part that is related to past changes, it shows quantitative rate of

employees in three main economic sectors of the province and towns in separating form. Only Islamshahr town encounters with decrease in industrial attraction. Damavand and Firoozkooh have such a problem in service sector.

After calculating RC, EM, CS, quotients, now it is time for calculating job prediction. In addition, we can get the results by multiplying sum of these quotients in numbers of employees in same parts. In fact, the second part of table (3) indicates prediction of employment amount in a following nine-year period. Moreover, it is in accordance with Iran horizon prospect in 2025. Tehran city will have most job creation in service sector with number 1898577 for year 2025.

**Table3. Variation and prediction of employment**

Town	The Change (2006-2015), Periods (t-1) until t			The prospect of year 2025, (2025)		
	Agriculture	Industry	Service	Agriculture	Industry	Service
Islamshahr	477	-2479	1460	3065	49569	85989
Baharestan	517	243	5914	3321	56651	97524
Pakdasht	311	146	13718	2008	34296	69180
Pishva	76	36	1884	490	8369	15418
Tehran	8789	4101	343412	56409	961676	1898577
Damavand	106	52	-8469	684	11683	10421
Robatkarim	199	95	14452	1295	22147	50266
Rey	342	160	2870	2195	37425	63391
Shemiranat	63	24	12019	344	5479	20880
Shahriyar	628	292	11034	4027	68638	122032
Firoozkooh	42	19	-5502	275	4708	21145
Qods	289	134	4486	1856	31656	55679
Malard	371	171	47147	2385	40674	112923
Varamin	504	235	30953	3232	55086	120036
Total				81586	1388057	2724431
				4194074		

### *Research Findings with Location Quotient in Models L-Q, I-Q*

Location quotient calculates employment rate by using average employed proportion of town in any economic sector to the average employed proportion in the same region of the province. For these quotient,  $LQ_1$ ,  $LQ_2$  relations were used.

In table 4, location quotient is calculated in employment structure. In this table, we can see location quotient of Islamshahr

for 2006 was equal to 1 and this town is self-sufficient in job creation. Towns that have location quotient higher than 1, are considered job exporters in different economic sectors such as Tehran which is a work force exporter in service sector and in agricultural and industrial part is an importer. This process was repeated for 2015 in Tehran and other towns have written numbers inserted to this table.

**Table4. Location quotient in employment structure**

Town	Location quotient of year 2006, old period, (t-1)			Location quotient of year 2015,current period, (t)		
	Agriculture	Industry	Service	Agriculture	Industry	Service
Islamshahr	1	1	1	1	1	0.996
Baharestan	0.83	1.003	1.004	0.94	1.003	0.996
Pakdasht	1.026	0.995	1.003	0.952	1.019	0.986
Pishva	1.031	1.016	0.99	0.984	1.008	0.992
Tehran	0.57	0.984	1.024	0.39	0.97	1.0312
Damavand	0.97	0.95	1.03	1.054	1.008	0.99
Robatkarim	0.98	0.99	1.009	1.070	0.992	0.999
Rey	0.93	1.019	0.99	1.011	1.024	0.98
Shemiranat	0.95	1.022	0.988	0.995	0.995	1
Shahriyar	1.031	1.003	0.997	1.059	0.989	1.001
Firoozkooh	0.96	1.024	0.986	1	0.997	0.998
Qods	1.021	1.01	0.993	0.93	1.01	0.992
Malard	0.87	1.022	0.991	0.78	1.005	1
Varamin	0.97	1.01	0.996	1.005	1.013	0.99
Total	0.94	1.003	1	0.94	1.003	0.996

In table (5), location quotient is calculated in added value structure. In this table, value added of towns is shown in different economic parts. Also location quotient is calculated for year 2015. As it is seen the most location quotient in agriculture belongs to Pishva town and the least one belongs to Tehran. In addition,

in industrial sector, the highest value belongs to Shemiranat and the least one belongs to Tehran. In fact, Tehran city in agricultural and industrial parts is importer from other towns and in service sector the most numbers is for Tehran and it is an exporter and the least one is for Shemiranat.

**Table5. Location quotient in dividing forms for towns and by using value added share of economic part**

Town	value added, (million Rial's), for year 2015				location quotient of year 2015, uses value added method's		
	Agriculture	Industry	Service	Sum	Agriculture	Industry	Service
Islamshahr	4089243	28625953	86434155	119149351	1.67	1.21	0.93
Baharestan	4553930	32204197	98787892	135540019	1.63	1.20	0.93
Pakdasht	3438682	22811307	65266607	91516596	1.83	1.26	0.91
Pishva	2602246	20127623	44099058	66828927	1.89	1.52	0.85
Tehran	3996306	100638117	804366838	909001261	0.22	0.56	1.13
Damavand	1695183	21916746	54682833	79294762	1.65	1.4	0.88
Robatkarim	3066933	25494989	63502644	92064566	1.62	1.4	0.88
Rey	3578088	27284112	77614343	108476543	1.60	1.27	0.92
Shemiranat	2509309	25942270	38807181	67258760	1.81	1.95	0.74
Shahriyar	4600399	37571564	511642151	815859347	1.41	1.2	0.94
Firoozkooh	2462840	21022184	49390946	72875967	1.64	1.46	0.87
Qods	3392214	33993320	84634156	901238196	1.33	1.39	0.89
Malard	3671025	28178673	82906231	114755929	1.56	1.24	0.93
Varamin	1812278	21469465	95253968	118535711	0.74	0.91	1.03
Sum	46468676	447280520	1763962367	22557711563	1.47	1.28	0.92
Total province							
Total	2257711563						

Comparisons of written calculation in table number 4 and 5 indicate that average numbers related to location quotient  $LQ_1$  job method is as follow: (0.94, 1.003, 0.996), and in value added method  $LQ_2$  is: (1.47, 1.28, 0.92). Difference in agricultural part with two others is completely obvious

(industry and service) in computed location quotient. In addition, computed quotients using value added and employee numbers models for two industry and service part indicates straight direction. In fact industrial and service parts benefits from harmony and one sided way in calculating

location quotient model that is based on value added and location quotient based on employee numbers in main economic parts.

## 6- Conclusion and Discussion

Inquiring ordinal challenges on job market, drawing ideal prospect and determining goals, solutions and practical programs in employment field of Tehran province for an appropriate time horizon is a suitable pattern of making decisions on policy making of job market and it also improves an effective entity framework in job market development. Tehran province benefits from potential and actual in human work forces encountered recently with serious challenges in this area. Lack of data clarity of inter-regional work force transition procedure, nonexistence of determining human needs in economic sectors and also lack of presenting information based on determining exact share of economic activists in job market and lack of research about determining regional position of employment all imply these problems. Therefore, the present article, by reviewing grounds and process related to work force of Tehran, inquires earlier conditions and presents a future horizon of job market in main agricultural, industrial and service sectors of the provincial regions. In addition, its achievements are as following:

- In last census of population in 2011, Tehran population was more than 12 million people. It had 3239109-employee population in 2006 and it had 3702753-employee population in year 2015. Prediction of employee population for 2025 would be 4194074 people.

- Used basis method in this research is output-input inter-regional work force and it was presented in two parts: a) shift

share method b) location quotient method. Shift share method used statistic based on employee of different economic sectors while location quotient method is presented in two different state of used statistic way. Used statistic in location quotient in the first state is based on employee numbers census and the second state is based on statistic about value added. Acquired calculation results with mentioned methods are as followings:

- Total employment growth in 2006 to 2015 is 1.4% (RS quotient). Sum of three quotients (RS+EM+CS) that indicates total employment variation shows that 8789 numbers of working people are added to agriculture sector in Tehran. In industry sector, 4101 numbers, and in service sector 343412 numbers of people would experience employment. In Damavand and Firoozkooh, number of working individuals would be diminished. In addition, industry sector of Islamshahr encounters with reduction in working ones.

- Location quotient ( $LQ_1$ ) that was chosen with the number of working ones to evaluate export, import procedures and it is compared with quotient 1. It shows in Tehran province that in 2006, Tehran had quotient of 0.57 and it was dependent on agricultural import, export products. This criterion was reduced in 2015 to 0.39 and it shows this dependence in an additive way. It is notable that service share increased from 1.024 in 2006 to 1.0312 in 2015 and it ranked first in the province. In fact, the city of Tehran ranked first in service export and first grade in agricultural sector product.

- Location quotient ( $LQ_2$ ) is related with value added. In addition, it uses Rial value added which indicates inter-regional products, to compare economic sectors in

their production abilities. In agricultural sector, Pishva ranked first and Tehran ranked the last one. In industry sector, Shemiranat is in the first grade and Tehran is in the last one, in service sector Tehran is in first rank, and Shemiranat is in the last one.

-Tehran province has employment sector in agriculture respectively 1.93%, 1.86% in 2006 and 2015. It reaches to 1.94 in 2025. In last ten years, it reduced partly in agriculture sector and we expect this share increases a few amount by 2025. This increasing procedure can be because of many reasons including decrease in other sectors.

- In industry sector, Tehran province in 2006 and 2015 is 37% and 37.4% respectively and it reaches to 31.9% in 2025. In fact, in 2006 up to 2015, employment share in industry sector increased partly and it is expected this procedure decreases 5 percent in employment from 2016 to 2025.

-Tehran province has employment share of 60.97%, 60.7% in service sector in 2006 to 2015 and it reaches to 65 percent by 2025. In fact, in last 10 years (2006 to 2015) employment share in service sector decreased 0.13 percent and it is expected in 2016, this share increased 5 percent up to 2025. This increasing procedure can be due to many reasons including decrease in industrial sector share.

- By using calculative methods it is seen that:

Location quotient uses statistics to calculate numbers of working people in 2015 for industrial, agricultural, and service sectors. It indicates 0.94, 1.003 and 0.996 respectively. Moreover, it shows Tehran's ability to export work forces of industrial part and the requirement of work forces entrance to agricultural

sector. Also, we can observe calculative location quotient by using value added for agricultural, industrial and service sectors that are respectively 1.47, 1.28 and 0.92, Tehran's ability in producing potential from agricultural sector is in the first rank and then industry and service sectors arranged respectively.

We should consider that in Iran horizon of 2025, employment share in industry sector in this province is less than 5 percent of current numbers. In addition, by noticing employment increase in agricultural sector, it is less than 1 percent, job market tendency to service sector and employment decrease in industrial sector is not a good promise for the job market. Job market planners should be careful that Tehran province is considered as an effective province on macroeconomic of the country and also other sectors of it. In addition, it can determine political goals and Iran horizon 2025. Based on the findings of this paper, the following suggestions for policy makers of the economic system are presented in order to properly and appropriately distribute the employed population in productive economic activities and to bridge the gap between economic sectors, which is a step towards the elimination of the unemployment crisis and the achievement of sustainable value added:

1- The employment inequality coefficients among the cities of Tehran indicate that the policies of land use planning and the balance of population, space, and activity relations have not been very successful at the highest level of implementation of macro policies in the capital; accordingly, to prevent the acceleration of inequality inside the province, the policy of the development of middle towns and cities, and the

attention to the redistribution of justice and employment and business, should be placed on the agenda in the executive and legislative bodies.

2- Government credits and investments should be directed in the agricultural sector of Tehran province, because this section has a significant impact on increasing employment, developing green space and reducing existing pollutants and using recyclable surface water and sewage resources to improve space. On the one hand, it can be useful in reducing the waste of water resources, attracting funds to agricultural productive sectors, reducing the inequality between economic sectors, both from the point of view of employment and income, and, on the other hand, it can absorb manpower and non-productive resources in service or industry sectors.

3- The service sector in Tehran metropolitan area, although having a high job creation rate, over reliance on this sector to maintain employment can, in the long run, make it difficult for the economy of Tehran to run. In fact, reducing the focus of the services sector from Tehran as the center of the province and the capital of Iran and its distribution in all provinces of the country is a potential development for reducing population density in Tehran and regional balanced development.

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